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### (54) CHILDREN'S SAFETY SEAT

KINDERSICHERHEITSSITZ

SIEGE DE SECURITE POUR ENFANTS

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FR-A- 2 559 043 FR-A- 2 693 688  
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**Description**

[0001] This invention relates to a children's safety seat and is particularly concerned to provide a seat that can conveniently be fitted into and removed from a motor vehicle as required to enable more than one child to be safely accommodated.

[0002] Childs' safety seats are well known and usually comprise an individual child's seat which can be removably connected into a suitably anchored restraining harness on the back seat, or, in some instances, the front seat, of a motor car. Such seats are useful for children weighing up to about 30kg and so are usually for children up to about 8 years of age.

[0003] Problems arise when it is necessary to cater for more than one child. Although it is quite possible to arrange for two separate safety seats to be releasably anchored on the rear seat of a car, it is difficult to cater for three children and virtually impossible for four. Moreover, the fitting of anchorages for a multiplicity of safety seats is time-consuming and expensive and the purchase and physical handling of a number of seats expensive and inconvenient.

[0004] It is an object of the invention to provide a safety seat that is suitable for more than one child and that is more convenient than current arrangements to deal with more than one child.

[0005] According to the invention, a child's safety seat to be securely and releasably attached to anchorage points in a motor vehicle when positioned on an existing seat of the vehicle, the safety seat having a back portion and a base portion, the back and base portions being subdivided to provide individual seats and the seat having integral means to enable it to be anchored in position is characterised in that a plurality of seats is provided and in that the seat has adjustable front supporting legs to provide additional rigidity and support and in that the legs are adjustable in the horizontal and in the vertical directions.

[0006] In a particularly preferred embodiment, the seat is designed to extend for substantially the full width of the vehicle seat on which it is to be positioned. Thus, it may be of a length to completely fill the width of the rear seat of a motor car. It may be specifically designed to fit the full width of a particular make and model of car. Such a full width children's seat may conveniently be sub-divided to provide four individual child's seats in the one integral seat. Alternatively, it may be sub-divided to form three slightly larger seats for children or two or three children's seats and one adult seat.

[0007] Preferably the seat is integrally-moulded of plastics material to form a sufficiently strong and rigid integral back and base portion with integrally-formed sub-divisions in the form of protrusions on the back and/or base portions to define the individual seats.

[0008] The anchorage means may be suitably positioned holes or slots moulded into the seat to receive anchorage straps for attachment to secure anchorages

on the vehicle in a conventional manner.

[0009] Alternatively the seat may be a welded metal frame having the back and base portions and welded sub-dividers. Suitable anchorage holes and slots may then be drilled in the desired locations.

[0010] The seat may carry suitable padding and decorative covering material together with individual harnesses for each child's seat portion, as is conventional.

[0011] The seat may be provided with front supporting legs, e.g. two legs, one at each front corner. These legs are preferably adjustable for width and height so as to be applicable to a variety of vehicles and they may bear down, for example, on the inner sills of the vehicle to provide additional rigidity and support.

[0012] It is not necessary that the seat be designed to fit onto the back seat of a car. It may, if desired, be designed to fit onto the front passenger seat, in which case it will normally be of a length to provide seats for two children, i.e. it will have one set of sub-dividers.

[0013] It is a requirement of law in certain countries that very young children must sit in a rearward facing seat. For example, in the United Kingdom, children up to 9kg. in weight (approximately up to 10 months) must be seated in a rearward facing seat as their necks are

insufficiently strong to support their heads in the event of a frontal collision of the vehicle in which they are travelling. In Sweden, children up to 4 years of age must be seated in rear-facing seats for similar reasons. In another aspect the invention provides a child seat as

defined incorporating a rearwardly facing seat to be securely and releasably attached to a seat in a motor vehicle, the rearwardly facing seat comprising a body shell in which a child can be seated, the shell having a first projections adjacent a first end thereof to clip into a corresponding recess in the backrest portion of the seat

and a stand portion attached to the underside of the shell, the stand portion having projections to clip into the substantially horizontal base portion of the seat, whereby the shell can be locked to the seat with the first end lower than its opposite end, and in that the shell is generally rectangular in plan and the first projection extends from a first of the two shorter edges.

[0014] FR-A-2 559 043 discloses a children's safety seat to be securely and releasably attached to anchorage points in a motor vehicle when positioned on an existing seat of the vehicle, the safety seat having a back portion and a base portion which are subdivided to provide two individual seats, whereby the seat has integral means which enable it to be anchored in position.

[0015] EP-A-0574848 discloses a rearwardly facing seat for a small child mounted on an ordinary passenger seat and held in place by a combination of a frame and straps.

[0016] By this means the safety seat can be positioned on a seat in a vehicle to face backwards with the head of the child comfortably above its feet in a semi-reclining position.

[0017] The shell may be an integral moulding of suita-

ble plastics material and the stand and projections may be part of the integral moulding. Alternatively, as indicated above the shell may be of welded metal construction.

[0018] Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is a perspective view of one form of chassis for a children's seat;

Figure 2 shows the chassis of Figure 1 upholstered and fitted with safety harness;

Figure 3 is a perspective view of a seat of the second aspect of the invention being presented to a seat similar to that of Figure 1;

Figure 4 is a similar view to Figure 3 of the two seats locked together;

Figures 5 and 6 are perspective views of modifications that may be applied to the seat of the invention; and

Figure 7 is a view of a seat similar to that of Figure 1 but having adjustable legs.

[0019] In Figure 1, a children's seat chassis 10 has an integral back portion 11 and base portion 12. The seat has three sets of dividers 13 and end fittings 14 at each end to define four separate child's seats 15,16,17 and 18.

[0020] Slots 19 along the dividing line between back 11 and base 12 and slots 20 in the back 11 and 21 in the base 12 provide means to receive anchorage straps and child's harness straps while providing means for adjustment as required.

[0021] As indicated above and as shown in Figure 2, the seat 22 will normally be upholstered to provide comfort and a pleasing appearance and will be fitted with releasable safety straps 23 to hold each child in position.

[0022] In Figure 3 is shown a baby's safety seat 30 in a children's safety seat 50 similar to that shown in Figure 1. Safety seat 30 has a body shell 33 of generally rectangular plan form. At one shorter edge 34 it has a projecting locating tongue 35. Underneath it has a stand 36 containing a slot 37 and two projecting feet 38. It is upholstered internally by conventional means and has a safety harness 39 and straps 40 by which it can be carried when not in use in a vehicle.

[0023] Seat 50 has a back portion 51 and a number of seat portions 52. The back and seat portions contain slots 53,54,55 by which the seat may be anchored to a vehicle seat, and child harness straps may be secured to the safety seat 50. Additionally, back portion 51 contains a slot 56 to receive locating tongue 35 of seat 30

and seat portion 52 contains slots 57 to receive feet 38 of stand 36 of seat 30. Seat 30 may thereby be located on and locked to seat 50 - see Figure 4. As an additional locking means, seat portion 52 of seat 50 is provided with a clip 59 to locate in slot 37 of stand 36.

[0024] A baby can therefore be securely carried in seat 30 while facing rearwardly of the vehicle in which the seat is used.

[0025] Seat 50 has been shown unupholstered for convenience but it will be appreciated that all the seat portions on all but the one to receive seat 30 may be upholstered.

[0026] In Figures 5 and 6 are shown two modifications to a seat such as seat 22 in Figure 2.

[0027] In Figure 5, seat 60 may have a series of slots 61 in its upper edge 62 to receive head restraints 63 or 64 which have legs 65 to fit into slots 61.

[0028] In Figure 6 seat 70 is provided with a divider screen 71 which fits into suitable slots between individual seat divisions 73,74. The screen may be useful in "curtaining off" one seat from another, which may be beneficial when carrying two or more small children.

[0029] In Figure 7 a seat 80 of the invention has a hollow passage 81 along its front edge. The passage is open at each end to receive a side extension 82 of a leg 83. The lower end of the vertical portion of each leg 83 has a screw-in rod 85 with a foot 86. Thus the legs can be adjusted horizontally by virtue of the degree of penetration of extension 82 into hollow passage 81, thereby adjusting the width between the pair of legs, and vertically by virtue of the amount rod 85 is screwed into leg portion 84.

[0030] Because the length of a seat of the invention can be tailored to the full width of the rear seat of the car to which it is to be fitted, it can be anchored very securely in position, even if wheel arches protrude into the car seat edges, so that there is little or no tendency for the safety seat to slide about.

#### 40 Claims

1. A child's safety seat (10,22,50,60,70,80) to be securely and releasably attached to anchorage points in a motor vehicle when positioned on an existing seat of the vehicle, the safety seat having a back portion (11,51) and a base portion (12,52), the back and base portions being subdivided (at 13) to provide individual seats (15,16,17,18) and the seat (10,22,50,60,70,80) having integral means (19,20,21,53,54,55) to enable it to be anchored in position characterised in that a plurality of seats (15,16,17,18) is provided and in that the seat has adjustable front supporting legs (83) to provide additional rigidity and support and in that the legs (83) are adjustable in the horizontal (at 81,82) and in the vertical (at 84,85) directions.

2. A children's safety seat according to Claim 1, char-

- acterised in that it is sub-divided to provide four individual seats (15,16,17,18).
3. A children's safety seat according to Claim 1 or 2, **characterised in that** it comprises an integral moulding of plastics material with integrally-formed protrusions (13) on the back and/or base portions (11,51 and/or 12,52) to define the individual seats (15,16,17,18). 5
4. A children's safety seat according to any preceding Claim, **characterised in that** it additionally comprises head restraints (63,64) having legs (65) to be received in slots (61) in the upper edge of the seat back portion. 10
5. A children's safety seat according to any preceding Claim, **characterised in that** it additionally includes a divider section (71) which fits into slots between adjacent individual seats (73,74). 15
6. A child's seat according to any preceding Claim, incorporating a rearwardly facing seat (30) to be securely and releasably attached to a seat (10,22,50,60,70,80) in a motor vehicle, the rearwardly facing seat (30) comprising a body shell (33) in which a child can be seated, the shell (33) having a first projections (35) adjacent a first end (34) thereof to clip into a corresponding recess (51) in the backrest portion of the seat and a stand portion (36) attached to the underside of the shell (33), the stand portion (36) having projections (38) to clip into the substantially horizontal base portion (52) of the seat (50), whereby the shell (33) can be locked to the seat (50) with the first end (34) lower than its opposite end, and in that the shell (33) is generally rectangular in plan and the first projection (35) extends from a first (34) of the two shorter edges (34). 20
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- in den horizontalen (bei 81, 82) und den vertikalen (bei 84, 85) Richtungen einstellbar sind.
2. Kindersicherheitssitz nach Anspruch 1, dadurch gekennzeichnet, daß er unterteilt ist, um vier einzelne Sitze (15, 16, 17, 18) bereitzustellen.
3. Kindersicherheitsitz nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß er ein integrales Formteil aus Kunststoff mit integral geformten Vorsprüngen (13) auf den Rücken- und/oder Rundteilen (11, 51 und/oder 12, 52) aufweist, um die einzelnen Sitze (15, 16, 17, 18) festzulegen.
4. Kindersicherheitssitz nach einem vorangehenden Anspruch, dadurch gekennzeichnet, daß er außerdem Kopfstützen (63, 64) mit Beinen (65) aufweist, die in Schlitten (61) im oberen Rand des Sitzrük-kenteils aufgenommen werden sollen.
5. Kindersicherheitssitz nach einem vorangehenden Anspruch, dadurch gekennzeichnet, daß er zusätz-lich einen Unterteilungsabschnitt (71) aufweist, der in Schlüsse zwischen benachbarten einzelnen Sitzen (73, 74) paßt.
6. Kindersicherheitssitz nach einem vorangehenden Anspruch mit einem rückwärts weisenden Sitz (30), der an einem Sitz (10, 22, 50, 60, 70, 80) in einem Kraftfahrzeug sicher und lösbar anbringbar ist, wobei der nach hinten weisende Sitz (30) eine Körperschale (33) aufweist, in welcher ein Kind zu sitzen vermag, wobei die Schale (33) einen ersten Vorsprung (35) benachbart zu einem ersten Ende zum Einsticken in eine Vertiefung (51) im Rücken-lehnenteil des Sitzes und einen Untergestellteil (36) aufweist, der an der Unterseite der Schale (33) angebracht ist, das Gestellteil (36) Vorsprünge (38) zum Einsticken in den im wesentlichen horizonta-ten Grundteil (52) des Sitzes (50) aufweist, wobei die Schale (33) am Sitz (50) mit dem ersten Ende (34), das tiefer liegt als sein gegenüberliegendes Ende, festsetzbar ist, und daß die Schale (33) in Draufsicht allgemein rechteckig ist und der erste Vorsprung (35) sich ausgehend von einem ersten (34) der zwei kürzeren Ränder (34) erstreckt.
- Patentansprüche**
1. Kindersicherheitssitz (10, 22, 50, 60, 70, 80) zum sicheren und lösbar Anbringen an Verankerungspunkten in einem Kraftfahrzeug bei Positio-nierung auf einem vorhandenen Sitz des Fahrzeugs, wobei der Sicherheitssitz einen Rük-kenteil (11, 51) und einen Grundteil (12, 52) auf-weist, wobei die Rücken- und Grundteile (bei 13) unterteilt sind, um einzelne Sitze (15, 16, 17, 18) bereitzustellen, und wobei der Sitz (10, 22, 50, 60, 70, 80) integrale Mittel (19, 20, 21, 53, 54, 55) auf-weist, um ihn in die Lage zu versetzen, in Position verankert zu werden, dadurch gekennzeichnet, daß mehrere Sitze (15, 16, 17, 18) vorgesehen sind, und daß der Sitz einstellbare vorneliegende Stütz-beine (83) aufweist, um zusätzliche Steifigkeit und Abstützung bereitzustellen, und daß die Beine (83) 45
4. Revendications
1. Siège de sécurité pour enfant (10,22,50,60,70,80) destiné à être fixé solidement et de façon amovible à des points d'ancrage d'un véhicule automobile lorsqu'il est en place sur un siège existant du véhi-cule, le siège de sécurité ayant une partie supé-rieure (11,51) et une partie inférieure (12,52), les parties supérieure et inférieure étant subdivisées (en un point 13) pour procurer des sièges indivi-duels (15,16,17,18) et le siège (10,22,50,60,70,80)

intégrant des moyens (19,20,21,53,54,55) pour permettre son ancrage en place, **caractérisé**:

**en ce qu'il** est prévu une pluralité de sièges (15,16,17,18) et en ce que le siège a des pieds d'appui à l'avant ajustables (83) pour fournir une rigidité et un appui supplémentaires et en ce que les pieds (83) sont ajustables dans les directions horizontale (en 81,82) et verticale (en 84,85). 10

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2. Siège de sécurité pour enfant selon la revendication 1, **caractérisé**:

**en ce qu'il** est subdivisé pour procurer quatre sièges individuels (15,16,17,18). 15

3. Siège de sécurité pour enfant selon la revendication 1 ou 2, **caractérisé**:

**en ce qu'il** comprend un mouillage monobloc de matière plastique avec des protubérances (13) formées monobloc sur les parties supérieure et/ou inférieure (11,51 et/ou 12,52) pour définir les sièges individuels (15,16,17,18). 25

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4. Siège de sécurité pour enfant selon l'une quelconque des revendications précédentes **caractérisé**:

**en ce qu'il** comprend en outre des repose-têtes (63,64) ayant des branches (65) destinées à être enfoncées dans des fentes (61) du bord supérieur de la partie supérieure du siège. 30

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5. Siège de sécurité pour enfant selon l'une quelconque des revendications précédentes, **caractérisé**:

**en ce qu'il** comprend en outre une pièce de cloisonnement (71) qui entre dans des fentes entre des sièges individuels adjacents (73,74). 40

6. Siège de sécurité pour enfant selon l'une quelconque des revendications précédentes, **caractérisé**:

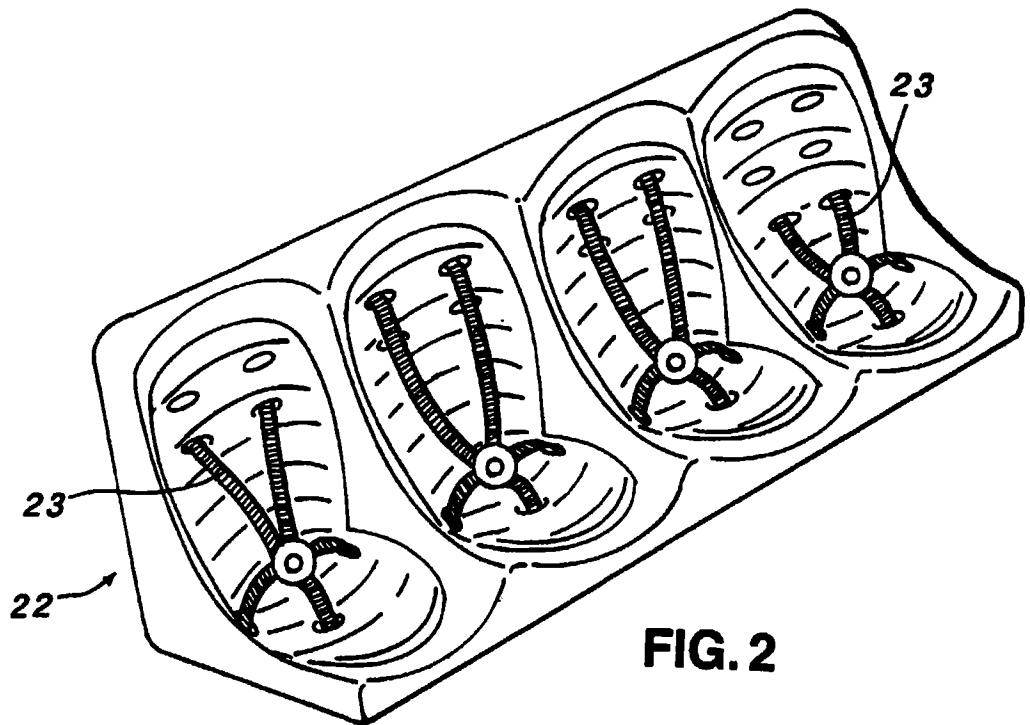
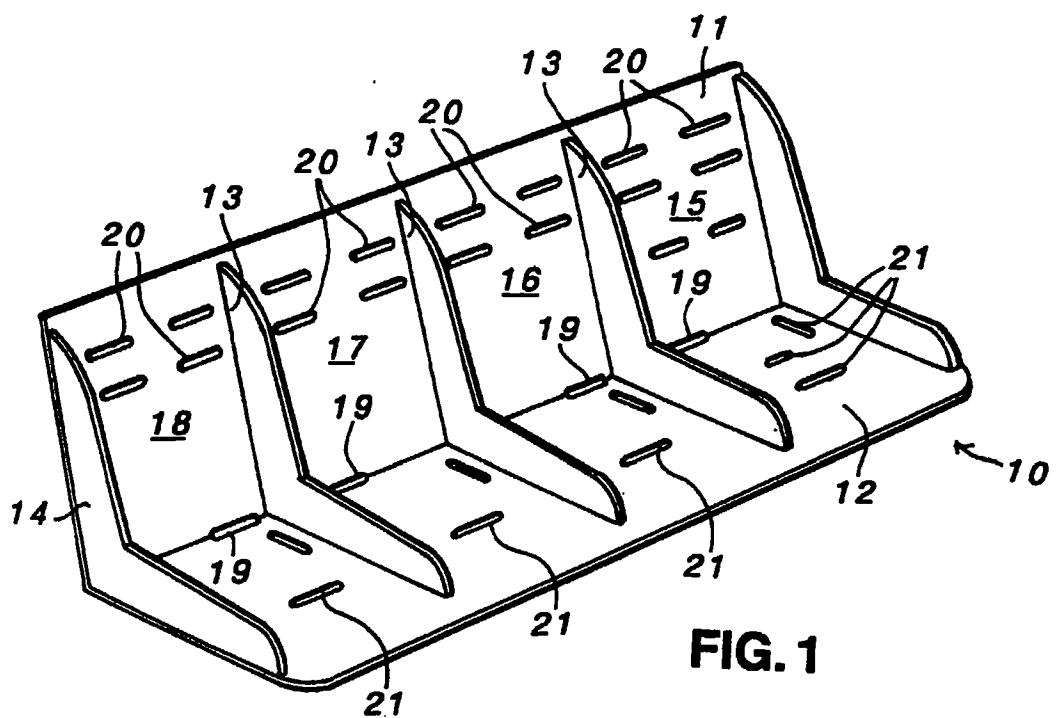
**en ce qu'il** incorpore un siège (30) tourné vers l'arrière destiné à être attaché de façon solide et amovible à un siège (10,22,50,60,70,80) d'un véhicule automobile, le siège tourné vers l'arrière (30) comprenant un corps en forme de coquille (33) dans lequel peut être assis un enfant, le corps en forme de coquille (33) ayant une première languette (35) adjacente à une première extrémité (34) destinée à être clipsée dans un évidement correspondant (51) de la partie la plus supérieure du siège, et une partie support (36) attachée au dessous de la coquille (33), la partie support (36) ayant des

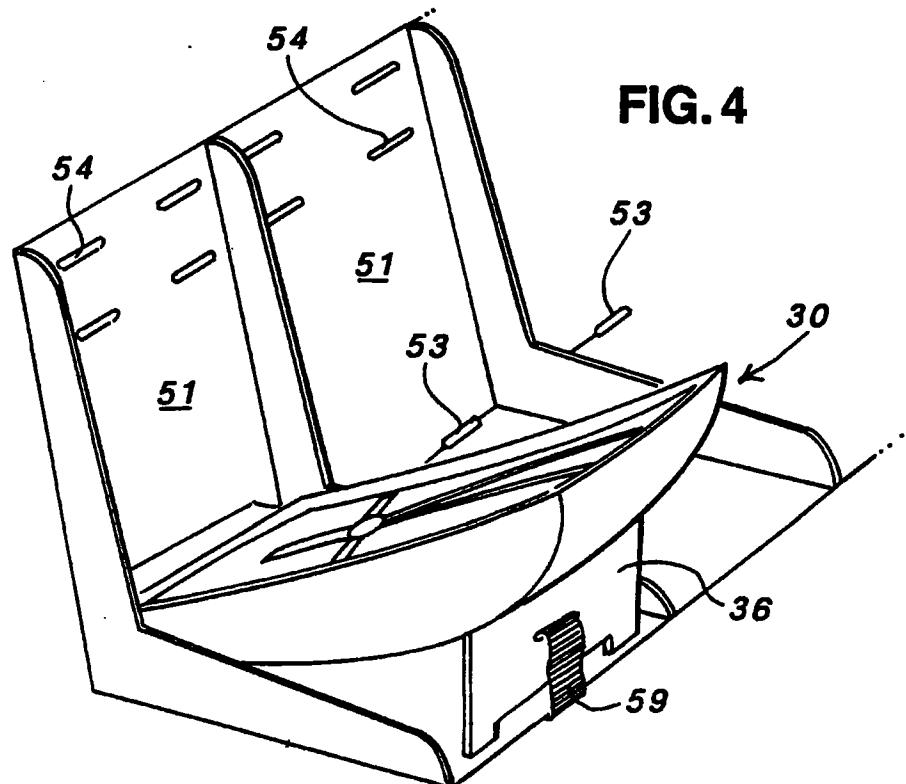
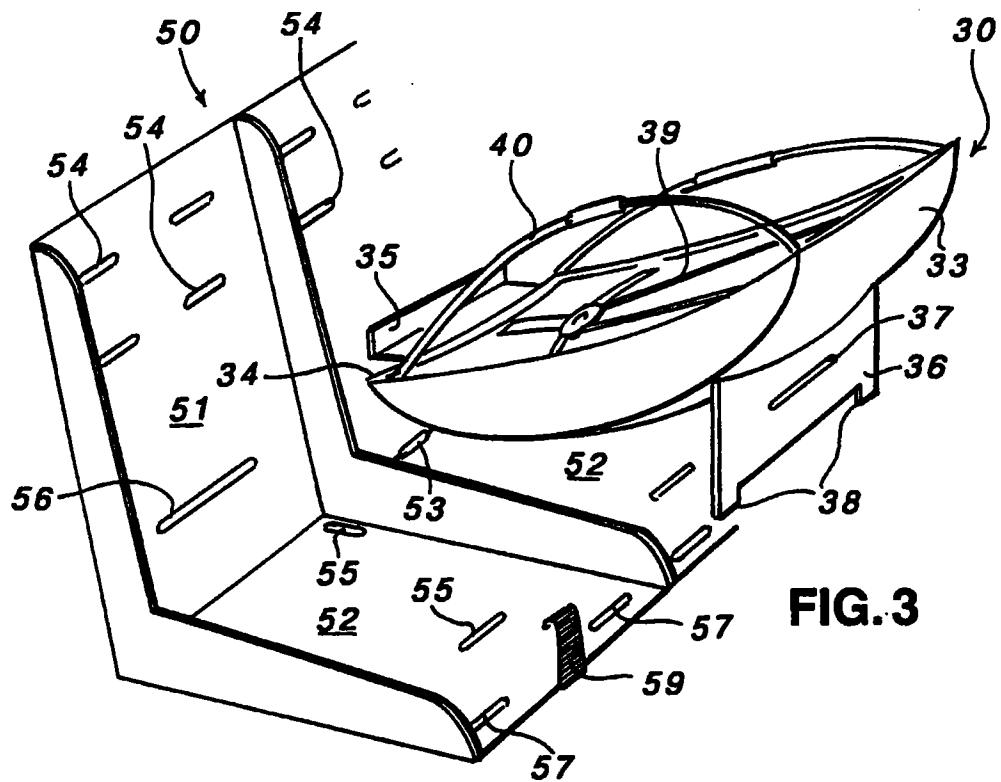
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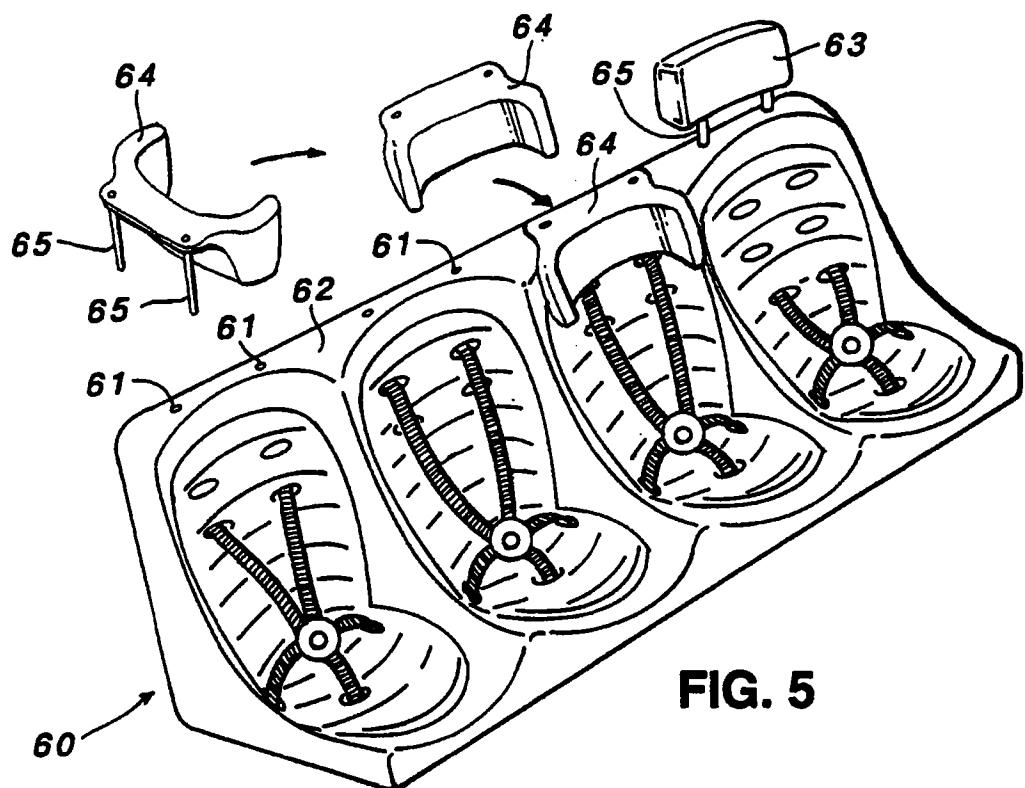
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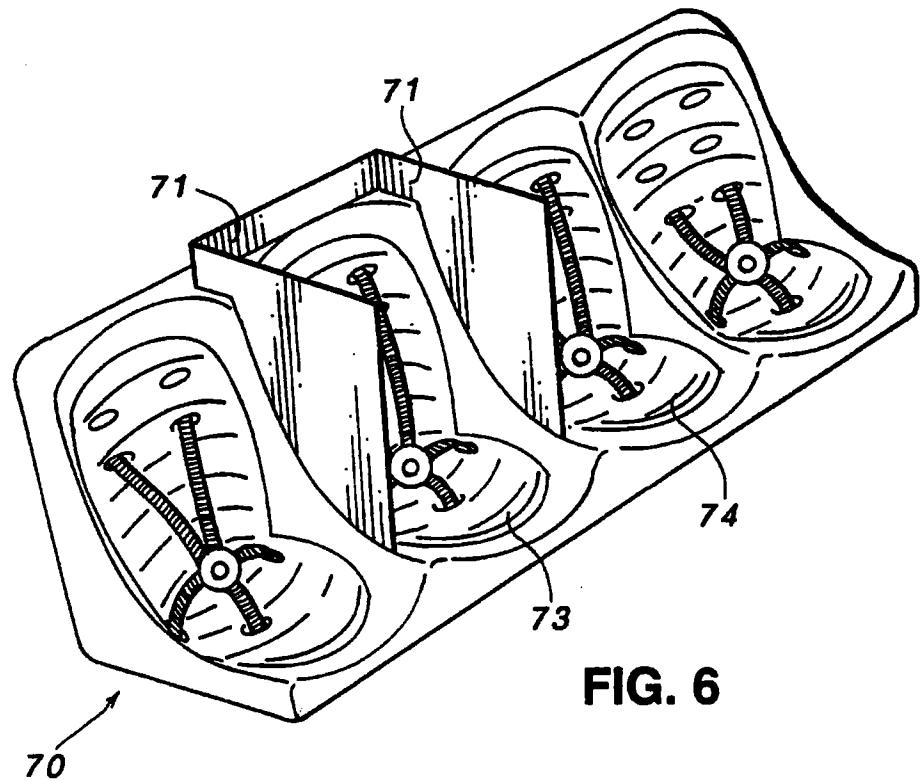
languettes (38) destinées à être clipsées dans la partie inférieure substantiellement horizontale (52) du siège (50) ce par quoi la coquille (33) peut être bloquée sur le siège (50) avec la première extrémité (34) plus basse que son extrémité opposée, et en ce que la coquille (33) est de forme générale en plan rectangulaire, et sa première saillie (35) s'étend depuis une première (35) des deux petits côtés (34).







**FIG. 5**



**FIG. 6**

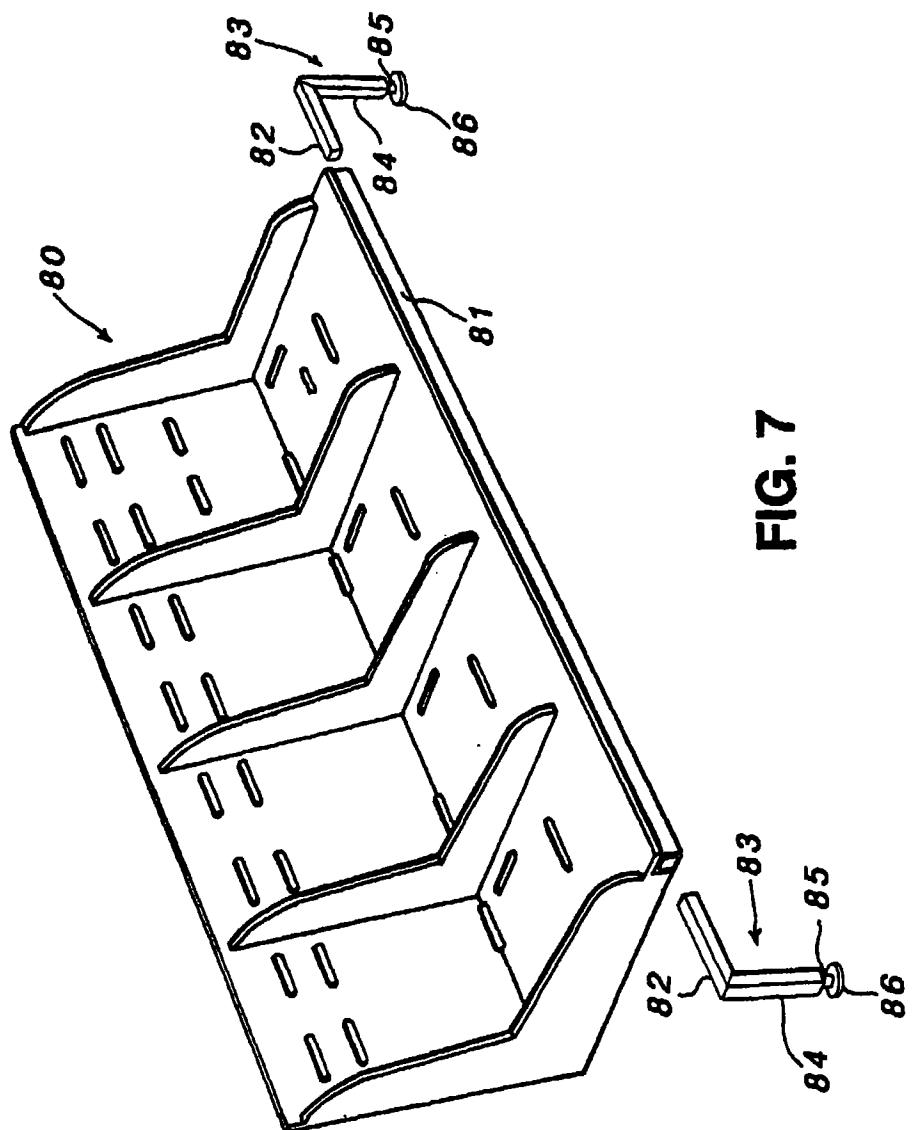


FIG. 7